



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 12, 2022

Mr. G. T. Powell
President and Chief Executive Officer
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, TX 77483

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 – RELIEF FROM THE
REQUIREMENTS OF THE ASME CODE (EPID L-2021-LLR-0075)

Dear Mr. Powell:

By letter dated September 23, 2021, as supplemented by letter dated September 1, 2022, STP Nuclear Operating Company (the licensee) submitted Relief Request RR-ENG-3-25 to the U.S. Nuclear Regulatory Commission (NRC) for relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, “Rules for Inservice Inspection of Nuclear Power Plant Components,” requirements at South Texas Project (STP), Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.55a(g)(5)(iii), the licensee requested relief and to use alternative requirements for inservice inspection (ISI) items on the basis that the Code requirement is impractical. The required examination coverage is impractical due to physical obstructions and limitations imposed by design, geometry, and materials of construction of the subject components.

The NRC staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(5)(iii). Therefore, the NRC staff grants the use of Relief Request RR-ENG-3-25 for the duration of the third 10-year ISI interval at STP, Units 1 and 2. The third 10-year ISI interval began on September 25, 2010, for Unit 1 and October 19, 2010, for Unit 2, and ended on September 24, 2020, for both units.

All other ASME Code, Section XI, requirements for which relief was not specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

G. Powell

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If you have any questions, please contact the STP Project Manager, Dennis Galvin at 301-415-6256 or via e-mail at Dennis.Galvin@nrc.gov.

Sincerely,

Jennifer L. Dixon-Herrity, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure:
Safety Evaluation

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELIEF REQUEST RR-ENG-3-25 FOR RELIEF FROM ASME CODE, SECTION XI
REQUIREMENTS FOR WELD EXAMINATIONS PERFORMED IN THE THIRD 10-YEAR
INSPECTION INTERVAL
STP NUCLEAR OPERATING COMPANY
SOUTH TEXAS PROJECT, UNITS 1 AND 2
DOCKET NOS. 50-498 AND 50-499

1.0 INTRODUCTION

By letter dated September 23, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21266A426), as supplemented by letter dated September 1, 2022 (ML22244A115), STP Nuclear Operating Company (the licensee) submitted Relief Request RR-ENG-3-25 to the U.S. Nuclear Regulatory Commission (NRC) for relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," requirements at South Texas Project (STP), Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.55a(g)(5)(iii), "ISI [Inservice Inspection] program update: Notification of impractical ISI Code requirements," the licensee requested relief and to use alternative requirements for ISI items on the basis that the Code requirement is impractical. The required examination coverage is impractical due to physical obstructions and limitations imposed by design, geometry, and materials of construction of the subject components.

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g)(4), "Inservice inspection standards requirement for operating plants," ASME Code Class 1, 2, and 3 components (including supports) must meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of ASME Code, Section XI, incorporated by reference in 10 CFR 50.55a(b), 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein.

Enclosure

The regulation in 10 CFR 50.55a(b)(2)(xv)(A), "Specimen set and qualification: First provision," requires that, when applying supplement 2, "Qualification Requirements for Wrought Austenitic Piping Welds," to ASME Code, Section XI, appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems," the following examination coverage criteria be met:

1. Piping must be examined in two axial directions, and when examination in the circumferential direction is required, the circumferential examination must be performed in two directions, provided access is available. Dissimilar metal welds must be examined axially and circumferentially.
2. Where examination from both sides is not possible, full coverage credit may be claimed from a single side for ferritic welds. Where examination from both sides is not possible on austenitic welds or dissimilar metal welds, full coverage credit from a single side may be claimed only after completing a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld. Dissimilar metal weld qualifications must be demonstrated from the austenitic side of the weld, and the qualification may be expanded for austenitic welds with no austenitic sides using a separate add-on performance demonstration. Dissimilar metal welds may be examined from either side of the weld.

The regulation in 10 CFR 50.55a(b)(2)(xvi)(B), "Ferritic and stainless steel piping examinations: Second provision," states that:

Examinations performed from one side of a ferritic or stainless steel pipe weld must be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single side examinations. To demonstrate equivalency to two sided examinations, the demonstration must be performed to the requirements of Appendix VIII, as conditioned by this paragraph and paragraph (b)(2)(xv)(A) of this section.

The regulation in 10 CFR 50.55a(g)(5)(iii) states:

If the licensee has determined that conformance with a Code requirement is impractical for its facility the licensee shall notify the NRC and submit, as specified in [10 CFR 50.4, "Written communications,"] information to support the determinations. Determinations of impracticality in accordance with this section must be based on the demonstrated limitations experienced when attempting to comply with the Code requirements during the inservice inspection interval for which the request is being submitted. Requests for relief made in accordance with this section must be submitted to the NRC no later than 12 months after the expiration of the initial or subsequent 120-month inspection interval for which relief is sought.

The regulation at 10 CFR 50.55a(g)(6)(i), "Impractical ISI requirements: Granting of relief," states:

The Commission will evaluate determinations under paragraph (g)(5) of [10 CFR] that code requirements are impractical. The Commission may grant such relief and may impose such alternative requirements as it determines is authorized by

law, will not endanger life or property or the common defense and security, and are otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request and the NRC staff to grant the relief requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 ASME Code Components Affected

The ASME Code components affected are ASME Code Class 1 and 2 welds in examination categories of B-B, B-D, C-G, and R-A with Item Nos. B2.12, B2.40, B3.110, C6.10, R1.11, and R1.20. The identification of specific welds is shown below taken from table 1 of attachment 1 to Relief Request RR-ENG-3-25.

STP, Units 1 and 2 - Welds with Limited Examination Coverage					
Item No. and Class	Unit - Component Identification and System	Limitation/ Coverage	Pipe Size (inch)	Materials	Examination Results
B2.12 Class 1	STP 2- PRZ-2-L6 Pressurizer	Shell F Longitudinal Seam Weld, 85 Percent (%) Coverage	NA	Ferritic steel	No Recordable Indications
B2.40 Class 1	STP 1 - RSG-1A-T1 Replacement Steam Generator	Circumferential Channel Head-to- Tubeplate Weld, 75.3% Coverage	NA	Ferritic steel	No Recordable Indications
B2.40 Class 1	STP 2 - RSG-2A-T1 Steam Generator	Circumferential Channel Head-to- Tubeplate Weld, 88% Coverage.	NA	Ferritic steel	No Recordable Indications
B3.110 Class 1	STP 2- PRZ-2-N3 Pressurizer	Pressurizer Safety Nozzle to Shell Weld, 73.63% Coverage	NA	Ferritic steel	No Recordable Indications
C6.10 Class 2	STP 2 – CIAPCS- 2A-PCW1	Containment Spray Pump Flange to Upper Case Weld, 51.2% Coverage	NA	Austenitic stainless steel	No Recordable Indications

STP, Units 1 and 2 - Welds with Limited Examination Coverage					
Item No. and Class	Unit - Component Identification and System	Limitation/ Coverage	Pipe Size (inch)	Materials	Examination Results
R1.11 Class 1	STP 1 – 4-CV-1120 -BB1 Weld 2 Chemical Volume and Control	Single Sided Scan Pipe-to-Valve Weld, 50% Coverage	4	Austenitic Stainless Steel	No Recordable Indications
R1.11 Class 2	STP 1 – 8-RH-1106-KB2, Weld 13 Residual Heat Removal	Single Sided Scan Pipe-to-Valve Weld, 37.5% Coverage	8	Austenitic Stainless Steel	No Recordable Indications
R1.11 Class 2	STP 1 – 8-RH-1107-BB2, Weld 1 Residual Heat Removal	Single Sided Scan Valve-to-Pipe Weld, 37.5% Coverage	8	Austenitic Stainless Steel	No Recordable Indications
R1.11 Class 1	STP 2 – 4-CV-2120 -BB1 Weld 2 Chemical Volume and Control	Single Sided Scan Valve-to-Pipe Weld, 50% Coverage	4	Austenitic Stainless Steel	No Recordable Indications
R1.11 Class 2	STP 2 – 8-RH-2106-KB2, Weld 13 Residual Heat Removal	Single Sided Scan Pipe-to-Valve Weld, 69% Coverage	8	Austenitic Stainless Steel	No Recordable Indications
R1.11 Class 2	STP 2 – 8-RH-2107-BB2, Weld 1 Residual Heat Removal	Single Sided Scan Valve-to-Pipe Weld, 69.3% Coverage	8	Austenitic Stainless Steel	No Recordable Indications
R1.20 Class 1	STP 2 – 4-RC-2422-BB1, Weld 24 Reactor Coolant	Single Sided Scan Pipe-to-Valve Weld, 50% Coverage	4	Austenitic Stainless Steel	No Recordable Indications

3.2 Applicable Code Edition and Addenda

The Code of record for the third 10-year ISI interval at STP, Units 1 and 2 is the ASME Code, Section XI, 2004 Edition. The licensee followed the requirements of ASME Code, Section XI, appendix VIII and the performance demonstration initiative (PDI). The PDI program is an industry program coordinated with the NRC and maintained by the Electric Power Research Institute (EPRI) for the qualification of ultrasonic procedures, equipment, and personnel for inspections of nuclear plant welds to satisfy the qualification provisions of ASME Code, Section XI, appendix VIII. When the PDI is implemented, the applicable Code for the examination is the ASME Code, Section XI, 2001 Edition, as conditioned by 10 CFR 50.55a(b)(2)(xv), "Section XI condition: Appendix VIII specimen set and qualification requirements," and 10 CFR 50.55a(b)(2)(xxiv), "Section XI condition: Incorporation of the performance demonstration initiative and addition of ultrasonic examination criteria."

3.3 Applicable Code Requirements

Examination Category	Item No.	Weld Examination Coverage Requirements
B-B	B2.12	To include essentially 100 percent of the examination volume of 1 foot of one of the pressurizer longitudinal head welds per head as depicted in the applicable figure shown in figure IWB-2500-2.
B-B	B2.40	To include essentially 100 percent of the examination volume of the tubesheet-to-head weld of steam generator as depicted in applicable figure shown in figure IWB-2500-6.
B-D	B3.110	To include essentially 100 percent of the examination volume of the pressurizer nozzle-to-vessel welds as depicted in the applicable figure shown in figures IWB-2500-7(a), (b), (c), or (d).
C-G	C6.10	To include the surface area of the weld as depicted in figure IWC-2500-8.
R-A	R1.11	To include essentially 100 percent of the examination location potentially subject to thermal fatigue.
R-A	R1.20	To include essentially 100 percent of the examination location not subject to a degradation mechanism.

The licensee noted that ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1," as approved in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 19 (ML19128A244), states that essentially 100 percent examination coverage equates to more than 90 percent of the examination volume or required surface area of each weld where the reduction in coverage is due to interference by another component or part geometry.

3.4 Reason for Request

The licensee stated in its relief request submittal dated September 23, 2021, that pursuant to 10 CFR 50.55a(g)(5)(iii), the subject relief request needs to be submitted to the NRC before September 24, 2021, "because STP has determined that compliance with the code requirements of achieving essentially 100% coverage of the welds listed in this request is impractical to achieve." The licensee further stated in its submittal that "[t]his request is based on actual demonstrated limitations experienced when attempting to comply with the code requirements in the performance of the examinations listed in this request."

3.5 Impracticality of Compliance

The licensee stated in its relief request submittal dated September 23, 2021, that the construction permits for STP, Units 1 and 2 were issued on December 22, 1975, and fall under the provisions of 10 CFR 50.55a(g)(2)(ii), which requires the plant design to provide the accessibility necessary to perform the required preservice and inservice examinations. The licensee stated that it has performed examinations to the maximum extent possible. Although the design of the plants has provided access for examinations to the extent practical, component design configurations with conditions resulting in examination limitations such as those from support interference, geometric configurations of welds and materials such as fittings or valve bodies made of cast stainless steel may not allow the full required examination volume or surface area coverage with the latest techniques available. This request for relief addresses those conditions. The licensee gave a typical example of a valve-to-pipe weld where essentially

100 percent of the code required volume cannot be examined from the valve side of the weld and where a plant modification would be needed to provide this coverage. Details of examination restrictions and reductions in required examination coverage are provided in attachment 1 of the relief request submittal.

The licensee stated in its relief request submittal dated September 23, 2021, that when examined, the welds listed in attachment 1 of this request did not receive the required code examination volume or surface area coverage due to their component design configurations or interference by other items. These conditions resulted in scanning or surface area access limitations that prohibited obtaining essentially 100 percent examination coverage of the required examination volumes or surface areas. The licensee indicated that although the examination of inaccessible volumes or surface areas of a weld prohibits achieving an essentially 100 percent coverage, it was able to achieve 100 percent coverage of the accessible volumes or surface areas of each weld.

3.6 Burden Caused by Compliance

The licensee stated in its relief request submittal dated September 23, 2021, that components and fittings associated with the subject welds are constructed of standard design items and materials meeting typical national standards that specify required configurations and dimensions. To replace these items with items of alternate configurations or materials to enhance examination coverage would require unique redesign and fabrication. Accordingly, the redesign and fabrication of these components would be an extensive effort based on the limitations that exist.

The licensee noted that radiography is impractical due to the amount of work being performed in the areas on a 24-hour basis when the welds are available for examination. Using radiography would result in numerous work-related stoppages and increased exposure due to the shutdown and startup of other work in the areas. The water may need to be drained from systems or components where radiography is performed, which increases the radiation dose rates over a much broader area than the weld being examined.

3.7 Additional Assurance of Structural Integrity

In lieu of achieving essentially 100 percent examination coverage, the licensee reported the examination coverage achieved in the field for subject welds as shown in the above table.

In addition, the licensee identified ASME Code required inspections that provided additional assurance of structural integrity where essentially 100 percent examination coverage was impractical. The licensee stated that periodic system pressure tests and VT-2 visual examinations were performed in accordance with the ASME Code, Section XI, Examination Category B-P, for Class 1 pressure retaining welds and items each refueling outage and for Examination Category C-H for Class 2 pressure retaining welds and items each inspection period of tables IWB-2500-1 and IWC-2500-1, respectively.

The licensee further stated that it conducted required dye penetrant test, magnetic particle test, or ultrasonic test examinations to the maximum extent possible as required by ASME Section XI or the risk-informed ISI (RI ISI) program.

3.8 Basis for Use

The licensee stated in its relief request submittal dated September 23, 2021, that “10 CFR 50.55a(g)(4) recognizes that throughout the service life of a nuclear power facility, components which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements set forth in the ASME Code to the extent practical within the limitations of design, geometry and materials of construction of the welds and items described in Attachment 1.” The licensee further stated that when a component is found to have conditions, which limit the required examination volume or surface area, STP is required to submit this information to the enforcement and regulatory authorities having jurisdiction at the plant site. The licensee submitted the subject relief request to address areas where these types of conditions exist and where the amount of coverage was reduced below the required coverage.

The licensee stated in its September 23, 2021, submittal that Class 1 Examination Categories B-B and B-D, and the Class 1 risk-informed piping welds covered by the relief request are all located inside the containment. The licensee indicated that there is instrumentation in place to assure that early detection of any reactor coolant system (RCS) pressure boundary leakage is identified. This is accomplished by the leakage detection instrumentation inside the containment where the RCS leakage detection instrumentation is controlled by the unit’s technical specifications (TSs). These instruments are used to quantify any unidentified leakage from the RCS and to meet the STP TSs surveillance requirements that have a limiting condition for operation (LCO) in TS section 3/4.4.6.

The licensee indicated that section 6.4, “Relief Requests,” of EPRI Topical Report (TR)-112657 Revision B-A “Revised Risk-Informed Inservice Inspection Evaluation Procedure,” states, in part, that a “new relief request will be generated for any RI-ISI piping element selection for which greater than 90 percent examination coverage is not achieved” (ML013470102).

With respect to the RI-ISI welds, the licensee stated in its submittal that it followed steps consistent with its impact on the basis of EPRI TR-112657, Revision B-A, on risk. The licensee stated that acceptance of limited examinations or volumes shall not invalidate the results of the change-in-risk evaluation. Areas with acceptable limited examination and their bases, shall be documented. The licensee stated that the change in risk acceptance criteria is 1E-7 for core damage frequency (CDF) and 1E-8 for large early release frequency (LERF) at the system level and 1E-6 for total CDF and 1E-7 for total LERF for all systems. The licensee calculated “delta risk,” which is the calculated difference in CDF/LERF that STP incurs due to using a RI ISI versus a conventional ASME Code, Section XI, inspection scope. The licensee stated that the requirement is that the delta-risk is less than the acceptance criteria.

3.9 ISI Interval

This request for relief is for the STP, Units 1 and 2, third 10-year ISI intervals, which began on September 25, 2010, for Unit 1 and October 19, 2010, for Unit 2. For both units, the third 10-year ISI intervals ended on September 24, 2020.

3.10 NRC Staff Evaluation

The NRC staff reviewed the examination locations, coverage maps and calculations, and examination discussions in attachment 1 of this relief request. The NRC staff evaluated the weld examination in terms of nondestructive examination (NDE) methods, examination coverage,

Examination Category R-A welds, examination results, defense-in-depth measures, and impracticality and burden of compliance.

NDE Methods

Based on information shown in attachment 1 to this relief request, the NRC staff verified that the licensee followed ASME Code, Section V, "Nondestructive Examination," article 4, "Ultrasonic Examination Methods for Welds," to examine steam generator and pressurizer welds. The NRC staff finds the licensee's use of ASME Code, Section V, article 4 to examine the subject welds in the steam generator and pressurizer acceptable.

The NRC staff further verified that the licensee followed ASME Code, Section XI, appendix VIII, supplement 2 to examine piping welds. Supplement 2 provides for the qualification requirements for the examination of wrought austenitic piping welds. The NRC staff notes that the licensee implemented the PDI program to satisfy the provisions in the ASME Code, Section XI, appendix VIII, supplement 2.

The NRC staff noted that all the subject welds except one are required to be examined volumetrically in accordance with the ASME Code, Section XI, IWB-2500, IWC-2500 and the licensee's RI-ISI program. The licensee used ultrasonic testing to perform the volumetric examination. However, a surface examination is required for the containment spray pump flange to upper case weld CIAPCS-2A-PCW1 in STP, Unit 2. The licensee used a liquid penetrant test to perform the surface examination for this weld.

Examination Coverage

Based on information shown in attachment 1 to this relief request, the NRC staff determined that for each of the vessel and piping welds, the licensee has followed the required and appropriate weld figures in ASME Code, Section XI, IWB-2500 and IWC-2500 to examine the subject welds. The NRC staff further determined that the licensee followed the corresponding ASME Code required volume and ASME Code required surface as shown on IWB-2500 and IWC-2500 figures. Therefore, the NRC staff determined that the licensee has satisfied the provisions of the NDE examination in terms of examining required weld volumes or surfaces.

Considering the cited limitations, the NRC staff determined that the coverage obtained for each of the welds in attachment 1 to the subject relief request is adequate and acceptable.

Examination Category R-A Welds

The examination requirements for the subject piping welds are governed by the licensee's RI-ISI program, which was approved by the NRC in a safety evaluation dated September 12, 2012 (ML12243A343). As shown in the sketches provided in attachment 1 to this relief request, the subject welds were examined to the extent practical. The licensee obtained volumetric coverage ranging from approximately 37 to 69 percent of the required volume without detecting any recordable indications.

As stated earlier, volumetric examinations on the subject welds were conducted with equipment, procedures, and personnel that had been demonstrated to the requirements outlined in ASME Code, Section XI, appendix VIII. These techniques have been demonstrated for detection of flaws located on the near-side of the welds for austenitic stainless steel materials and both near- and far-side detection of flaws for carbon steel materials. However, because of limited access,

the licensee has only taken partial credit for the ASME Code-required inspection volumes on the subject austenitic stainless steel piping welds. The licensee's ultrasonic techniques included 45-degree shear waves and 60- and 70-degree refracted longitudinal waves, as applicable. Longitudinal waves have been shown to provide some detection on the far side of austenitic stainless steel welds. While the licensee has only taken credit for limited coverage with single-sided access, it is expected that the techniques employed by the licensee, would have provided some coverage beyond the near side of the weld.

Additionally, for the piping welds covered under the RI-ISI program such as those under Examination Category R-A and Item Nos. R1.11 and R1.20, the licensee performed probabilistic risk assessment to determine the changes in CDF and LERF because of limited coverage. The NRC staff determined that to quantify the effect on delta risk for the RI-ISI welds, the delta risk was adjusted by not crediting the RI-ISI weld with limited examination coverage. The licensee calculated the delta risk considering the case where the weld is credited (included in the analysis) and not credited (removed from the analysis). The NRC staff determined that for all the RI-ISI welds covered in the relief request, the changes in CDF and LERF values are negligible and are below the acceptable limits of $1E-07$ for CDF and $1E-08$ for LERF.

Therefore, the NRC staff determines that a limited examination coverage for the RI-ISI welds is acceptable in terms of risk to the plant safety.

Examination Results

Based on information shown in attachment 1 to the relief request, the NRC staff determined that the licensee did not detect any recordable indications in the welds in the scope of this relief request.

Defense-in-Depth Measures

The NRC staff noted that STP, Units 1 and 2 have RCS leakage detection systems to monitor potential leakage from the subject welds. The RCS leakage detection instrumentation inside the containment is controlled by the unit's TSs. These instruments are used to quantify any unidentified leakage from the RCS and to meet the STP TSs surveillance requirements that have an LCO in TS section 3/4.4.6.

The NRC staff further noted that the ASME Code, Section XI, IWA-5000 requires licensees to perform a system leakage test during plant startup. The NRC staff determined that the licensee did not ask relief from IWA-5000 in the subject relief request; therefore, the licensee performed the system leakage tests as a defense-in-depth measure to detect any potential leakage from the subject welds.

Impracticality and Burden of Compliance

Based on information shown in the weld configurations and ultrasonic testing beam coverage maps in attachment 1 to the relief request, the NRC staff determined that essentially 100 percent examination coverage could not be achieved for the subject welds because of various obstructions and weld locations. For example, the permanent insulation support ring blocked the accessibility for the examination of the pressurizer weld, PRZ-2-L6. The ring support at the steam generator blocked the examination of steam generator weld RSG-2A-T1. For many piping welds, the coverage was limited because the ultrasonic testing examination could only be performed from one side of the weld instead of both sides (i.e., a single-side

examination). Therefore, the NRC staff recognizes that to achieve essentially 100 percent examination coverage, the licensee would have to modify the welds or remove the obstructions, which would be a burden to the licensee.

Summary

The NRC staff concluded that based on the examination coverage obtained for the subject welds, if significant service-induced degradation were occurring, there is reasonable assurance that evidence of degradation would be detected by the examination coverages achieved.

The NRC staff determined that the volumetric examinations for the subject welds were performed to the maximum extent practical. The NRC staff further determined that obtaining the ASME Code-required examination volume for the subject welds is impractical because of the coverage limitations and that the modifications necessary to obtain the required coverage would impose a burden upon the licensee.

The NRC staff concluded that there is reasonable assurance that the structural integrity of the subject welds will be maintained for the following reasons: (1) no recordable indications were detected; (2) evidence of safety significant service-induced degradation in subject welds, if it were to occur, would be detected in the examination coverages achieved; (3) the licensee performed the required pressure testing, which included visual examination for evidence of leakage, in accordance with the ASME Code, Section XI, IWA-5000; (4) the licensee's probabilistic risk assessment has shown that the risk of not achieving essentially 100 percent examination coverage for the subject RI-ISI welds is insignificant to the plant safety; and (5) the licensee has defense-in-depth measures to monitor the subject welds for leakage.

4.0 CONCLUSION

As set forth above, the NRC staff has determined that it is impractical to satisfy the ASME Code-required greater than 90 percent examination coverage for the subject welds due to material and component configuration. The NRC staff finds that imposition of the ASME Code requirements would result in an excessive burden to the licensee. The NRC staff determines that granting the relief request pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(6)(i). Therefore, the NRC staff grants the use of Relief Request RR-ENG-3-25 for the duration of the third 10-year ISI interval at STP 1 and 2. The third 10-year ISI interval began on September 25, 2010, for Unit 1 and October 19, 2010, for Unit 2, and ended on September 24, 2020, for both Units.

All other ASME Code, Section XI requirements for which relief has not been specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributors: Varoujan Kalikian, NRR
John Tsao, NRR
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Date: September 12, 2022

SUBJECT: SOUTH TEXAS PROJECT, UNITS 1 AND 2 – RELIEF FROM THE REQUIREMENTS OF THE ASME CODE (EPID L-2021-LLR-0075) DATED SEPTEMBER 12, 2022

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